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09/743,859	06/11/2001	Richard R Schrock	M0925/7069	2196

7590  
Timothy J Oyer  
600 Atlantic Avenue  
Boston, MA 02210

01/26/2004

EXAMINER

TESKIN, FRED M

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/743,859

Applicant(s)  
Schrock, et al.

Examiner  
Fred Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Oct 2, 2003
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 3-7, and 9-90 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 3-7, 9-76, and 78-90 is/are allowed.
- 6) ☒ Claim(s) 77 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 11
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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1. The response of October 2, 2003 has been considered with the following effect:

(I) The objection to the specification has been reconsidered and is withdrawn in view of applicants' arguments as presented on page 2 of the response.

(II) The § 112/2d paragraph rejection of claims 12, 15, 18-39, 56, 77, and 84 has been obviated by appropriate claim amendments.

(III) The § 112/2d paragraph rejection of claim 80 has been reconsidered and is withdrawn in view of the portion of the specification cited by applicants (response, page 24) wherein the expression is adequately defined.

(IV) The § 112/2d paragraph rejection of claims 85 and 88 has been reconsidered and is withdrawn because the expression in question, "substituted derivatives," is considered reasonably definite when read in context with the structure and Markush grouping set forth in parent claim 84 (of which the structures depicted in claims 85 and 88 are each a subgenus) and in view of the antecedent disclosure, e.g., page 10, line 26 to page 11, line 20, where various suitable substituents are proposed.

(V) The obviousness-type double patenting rejection has been obviated by the proper terminal disclaimer submitted with the response.

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(VI) The prior art rejection of claims 1, 3-7, 9-76 and 78-90 based on Fujimura et al has been reconsidered and is withdrawn in view of applicants' arguments as presented on pages 25-27 of the response.

(VII) The prior art rejection of claim 77 based on Fujimura et al is maintained and applicants' arguments are unpersuasive for the reasons detailed below.

(VIII) Claim 77 is subject to new grounds of rejection as detailed below.

2. Claim 77 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(A) Claim 77 is confusing and inaccurate in that "R" in the expression "M=N-R" should read -R<sup>1</sup>- in view of the antecedent structure (wherein R<sup>1</sup>, not R, appears) and the supporting disclosure (see, e.g., page 3, lines 25-28).

(B) Claim 77 also is incomplete, hence indefinite, due to lack of definition for variable R<sup>1</sup> of the recited structure.

(C) Claim 77 also is indefinite due to lack of proper antecedent basis for "the mixture," as recited in the antepenultimate line.

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3. Claim 77 is rejected under 35 U.S.C. § 102(a) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as unpatentable over Fujimura et al, "Asymmetric Ring-Closing Metathesis Catalyzed by Chiral Molybdenum Alkylidene Complexes", *J. Org. Chem.* 1998, 63, 824-832 ("Fujimura").

The discussion of Fujimura set forth in the previous Office action (paper no. 8, p. 7) is incorporated herein by reference. The rejection of claim 77 is maintained for the reasons of record and those which follow.

4. Applicants' arguments filed October 2, 2003, have been fully considered but are not persuasive of error in the repeated rejection.

Applicants traverse the rejection, arguing that Fujimura does not disclose a ring-closing olefin metathesis reaction involving a substrate having a plane of symmetry, that forms a product free of a plane of symmetry, and does not disclose or suggest that utilizing the claimed amount of catalyst (e.g., less than 15 mol %) would be effective in performing the reaction. Rather, applicants contend that Fujimura refers to reactions involving racemic mixtures, not symmetric trienes, and which include "large" amounts of catalyst (i.e., 50 mol %). (Response, pp. 26-27.)

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These arguments, while effective in distinguishing the claimed method over Fujimura, fail to point out a single distinction in the claimed composition versus the Fujimura catalyst.

In particular, the dialkoxide catalyst of structure (2) of Fujimura (see page 825) is seen to correspond to the structure depicted in claim 77 when M is Mo, R<sup>1</sup> is aryl, two of the R<sup>2</sup>s are methyl and the other phenyl. The dialkoxide ligand itself being derived from an "optically pure" diol (i.e., (1R,2R)-TBEH-H<sub>2</sub>; *id.*, Scheme 2), meets the limitation of claim 77 to a chiral dialkoxide of at least 80 % optical purity.

Claim 77 further describes the dialkoxide as having "sufficient rigidity," and then defines this expression by reference to a specific reaction site as being of "sufficient shape specificity" to cause a molecular substrate having a plane of symmetry to react with a M=C center at that reaction site, forming a catalytic olefin metathesis product that has at least a 50 % enantiomeric excess of at least one enantiomer present in the mixture, the product being free of a plane of symmetry.

The same reaction site and M=C center (i.e., Mo=C) are present in the Fujimura structure (2), and the recitation in claim 77 of an intended reactant (molecular substrate having a plane of symmetry) and a defined reaction product is not seen as patentably limiting with respect to the composition itself.

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In any event, the dialkoxide ligand of Fujimura appears to possess "sufficient rigidity" as that term is defined herein. See, e.g., page 9, lines 17-18 of the specification, where "sufficient rigidity" is said to mean a dialkoxide that "would provide a *specific rotation* as opposed to reverting back to an enantiomeric mixture."

Since the (R,R)-TBEH-H<sub>2</sub> ligand synthesized per Fujimura is characterized, *inter alia*, by a specific rotation of +21.2° (see page 825, structure 4), a plausible basis exists for concluding that the dialkoxide catalyst of structure (2) inherently meets the "sufficient rigidity" limitation of claim 78.

Accordingly, no patentable distinction is discernible between the claimed and prior art compositions.

5. The following non-statutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the right to exclude granted by a patent. In re Sarett, 327 F.2d 1005, 140 USPQ 474 (CCPA 1964); In re Schneller, 397 F.2d 350, 158 USPQ 210 (CCPA 1968); In re White, 405 F.2d 904, 160 USPQ 644 (CCPA 1969); In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); In re Van Ornam, 686 F.2d

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937, 214 USPQ 761 (CCPA 1982); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and In re Goodman, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claim 77 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 6,121,473. Although the conflicting claims are not identical, they are not patentably distinct from each other because they differ merely in matters of scope and/or semantics.

Indeed, the conflicting claims are drawn to a composition defined by an identical overall structure as well as the same reaction site and M=C center. The recitation in claim 77 of a different intended reactant vis-a-vis patent claim 1 (molecular substrate having a plane of symmetry vs. mixture of two enantiomeric olefins) is not seen as patentably significant,



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especially since both the instant and patented claims cover dialkoxide ligands defined by the same structure; i.e., claim 77 covers compositions wherein the chiral dialkoxide comprises the same structure depicted in claim 3 of the '473 patent. In fact, this common structure is disclosed by applicants in support of the composition invention. (Specification, page 10, lines 21 et seq.)

As such, the instant and patented compositions are deemed patentably indistinct. Currently, the only discernible difference appears to be that claim 77 does not specifically define  $R^1$  whereas per patent claim 1, each of  $R^1$  and  $R^2$  is selected from a Markush group of specific chemical entities. Claim 77 calls for selecting  $R^2$  from the very same entities; therefore, applicants are advised that amending claim 77 such that  $R^1$  is defined by the same Markush group as  $R^2$  may result in the conversion of this obviousness-type double patenting rejection to a statutory double patenting rejection in the next Office action.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for

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patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designating the United States was published under Article 21(2) of such treaty in the English language.

8. Claim 77 is rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. 6,121,473 to Schrock et al.

Schrock et al disclose metal complexes corresponding in structure to the instantly claimed composition. See in particular the composition generically described in column 4, lines 25 et seq and column 6, lines 35 et seq., and the specific complexes synthesized in Examples 2 and 3.

The recitation in claim 77 of an intended reactant different to Schrock et al (molecular substrate having a plane of symmetry vs. mixture of two enantiomeric olefins) is not seen as patentably limiting as to the composition itself, especially since both the claimed and disclosed compositions comprise dialkoxide ligands having the same structure, as noted above in the discussion of the double-patenting rejection over this same patent.

9. Claims 1, 3-7, 9-76 and 78-90 are allowable over the prior art of record. Examiner has not, as of the date of this Office action,

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located or identified any prior art document(s) that can be used to render the method defined by said claims anticipated or obvious to a person of ordinary skill in the art.

10. In view of the new grounds of rejection, this action is made non-final.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

  
FRED TESKIN  
PRIMARY EXAMINER  
1713

FMTeskin/12-30-03